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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,920	08/12/2004	Hungwen Jen	81098518 FCHM 0157 PUS	4919
28395 7590 12/05/2008 BROOKS KUSHMAN P.C./FGTL 1000 TOWN CENTER 22ND FLOOR SOUTHFIELD, MI 48075-1238			EXAMINER SMITH, JENNIFER A	
			ART UNIT 1793	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/710,920	Applicant(s) JEN ET AL.	
	Examiner JENNIFER A. SMITH	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Application

Claims 1-5, 13, 14, 19-21, and 23-27 have been amended.

Claims 1-27 are pending and presented for examination.

Withdrawal of Claim Rejections - 35 USC § 112 – 2nd Paragraph

The rejection of claims 14-15 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is withdrawn in view of Applicant's amendments.

Withdrawal of Claim Rejections - 35 USC § 102 and 103

The rejection of claims 1-8, 10-16, and 18-27 under 35 U.S.C. 102(b) as being anticipated by Farnos et al. (US Patent No. 5,589,147) is withdrawn.

The rejection of claim 9 under 35 U.S.C. 103(a) as being unpatentable over Farnos et al. (US Patent No. 5,589,147) in view of Cai et al. (US Patent Publication No. 2003/0139288 A1) is withdrawn.

The rejection of claim 17 under 35 U.S.C. 103(a) as being unpatentable over Farnos et al. (US Patent No. 5,589,147) in view of Cuif (US Patent No. 5,747,401) is withdrawn.

Applicant's amendments necessitated the new grounds of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 8, 10-15, 18-20, 22, 24, and 25 are rejected under 35

U.S.C. 102(b) as being anticipated by Miura et al. (US Patent No. 5,427,753).

In regard to claims 1 and 2, Miura et al. teaches a catalyst for removing nitrogen oxides from exhaust gas. The catalyst is composed of a zeolite, a phosphorous-containing compound, and an active metal [See Column 2, lines 15-20]. The type of phosphorous compound include a barium phosphate [See Column 3, line 2]. Miura et al. does not explicitly disclose the conjugate base oxide of an inorganic acid with any specific K_a . However, this is an inherent characteristic of the conjugate base oxides taught by Miura. Applicant's use of the same material for the same function confirms that barium phosphate has the same K_a values as required in the instant claims and

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therefore resists surface-area-reducing phase transitions [See Applicant's Specification, Paragraph 0029].

In regard to claims 3, 10, 12, and 13, Miura et al. teaches incorporating the phosphorous into the zeolite ($\text{SiO}_2/\text{Al}_2\text{O}_3$ composition) support [See Column 2, lines 14-19 and 60-63].

In regard to claims 8 and 11, the method of incorporation of the phosphorus into the zeolite can include impregnation using an aqueous solution or by physical mixing of the phosphorous compound [See Column 2, lines 30-59]. In regard to claim 8, Muria does not explicitly teach grinding the fine particles. The reference teaches a product that appears to be the same as the product set forth in a product-by-process claim although produced by a different process. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP § 2113.

In regard to claims 14 and 15, one or more active metals are introduced to the catalyst including platinum [See Column 3, lines 21-22 and 27].

In regard to claims 18-20 and 22, Miura et al. teaches a catalyst for removing nitrogen oxides from exhaust gas. The catalyst is composed of a zeolite, a phosphorous-containing compound, and an active metal [See Column 2, lines 15-20].

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The type of phosphorous compound include a barium phosphate [See Column 3, line 2].

The phosphorous is incorporated into the zeolite ($\text{SiO}_2/\text{Al}_2\text{O}_3$ composition) support [See Column 2, lines 14-19 and 60-63]. One or more active metals are introduced to the catalyst including platinum [See Column 3, lines 21-22 and 27]. Muria et al. does not explicitly disclose the conjugate base oxide of an inorganic acid with any specific K_a .

However, this is an inherent characteristic of the conjugate base oxides taught by Muria.

Applicant's use of the same material for the same function confirms that barium phosphate has the same K_a values as required in the instant claims and therefore resists surface-area-reducing phase transitions [See Applicant's Specification, Paragraph 0029].

In regard to claims 24-25, Miura et al. teaches a method for treating an exhaust gas using a catalyst. The coarsening resistant automotive exhaust catalyst and all of its limitations are disclosed in the Miura reference and therefore the reference also anticipates the method of inhibiting coarsening in an automobile exhaust catalyst by using the disclosed catalyst.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made

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to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-7, 16, 21, 23, 26, and 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al. (US Patent No. 5,427,753) in view of Nunan (US Patent No. 5,064,803).

In regard to claims 4, 5, 21, 23, 26, and 27, Miura fails to teach doping a gamma-alumina compound.

The Nunan reference is drawn to a catalyst for use in converting exhaust gases. The support used taught by Nunan is alumina, particularly the gamma and delta forms, which typically have a surface area of about 50 to 300 m² /gm. One of skill in the art, at the time of Applicants invention, would be motivated to use a gamma alumina component because the large surface area serves to provide increased contact between the catalytic material and the exhaust gases [See Nunan, Column 3, lines 31-34].

In regard to claims 6 and 7, the Miura reference fails to teach a preferred weight percentage of the metal compound.

Nunan teaches barium in the catalyst composition, acting as a promoter. The amount of the promoter will be about 1 to 20 wt % based on the catalyst [See Column 5,

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lines 40-42]. This amount is a common weight percentage and one of skill in the art would recognize providing the barium solution in an amount useful for depositing ceria or other active metals [See Nunan, Column 5, lines 36-39].

In regard to claim 16, the Miura reference fails to teach a cerium containing oxide.

The Nunan reference is drawn to a catalyst for use in converting exhaust gases. The catalyst contains ceria, in a cerium oxide compound.

One of skill in the art would have been motivated, at the time of Applicant's invention to include a ceria oxide compound because it is considered to be an oxygen storage component and is believed to have many valuable functions in a catalyst arrangement [See Nunan, Column 49-51].

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al. (US Patent No. 5,427,753) in view of Cai et al. (US Patent Publication No. 2003/0139288 A1).

Miura et al. teaches all of the limitations of claim 1 but fails to teach any explicit size required with regard to the conjugate base oxide particles.

Cai et al. teaches a method of making a catalyst in which small catalyst particles are dispersed on the surface of larger catalyst carrier particles. More specifically, it relates to using a dry-coating process to coat nanometer-sized catalyst particles on the surface of larger catalyst carrier particles. The dry-coated catalyst particle/carrier particle composite mixture is then adapted for a catalyst application, such as in automotive exhaust gas treatment [See Page 1, Paragraph [0001]].

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to mill the barium phosphate taught by Miura to a size range consistent with the teachings of Cai because Cai teaches that coating with nanosized particles yields high effective surface area of the catalyst particles on the catalyst carrier [See Page 1, Paragraph [0009]].

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al. (US Patent No. 5,427,753) in view of Nunan (US Patent No. 5,064,803) and further in view of Cuif (US Patent No. 5,747,401).

The Miura and Nunan references teach all of the limitations of claim 16 but fail to teach the cerium oxide to be a mixed oxide.

Cuif teaches mixed oxides of cerium and zirconium are used for many applications, including catalysts used in automotive catalytic converters

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to utilize the mixed oxides taught in Cuif because they are known to improve catalytic function in exhaust gas treatment systems such as those taught in Miura and Nunan.

Response to Arguments

Applicant's arguments, submitted on 09/02/2008, with respect to claims 1-27 are directed to the claimed amendments and have been considered but are moot in view of the new ground(s) of rejection. Applicant has narrowed the independent and dependent claims. The independent claim is now directed to a catalyst containing a barium component and further dependent claims include limitations to the conjugate base oxide. Upon consideration of these amendments, which have changed the scope of the claims, new grounds of rejection were made

Conclusion

Claims 1-27 remain rejected.

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER A. SMITH whose telephone number is (571)270-3599. The examiner can normally be reached on Monday - Friday, 8:30am to 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J.A. LORENZO/
Supervisory Patent Examiner, Art Unit 1793

Jennifer A. Smith
December 1, 2008
Art Unit 1793

JS